

FROM		DATE	
Chief, TEB/ESD		10 Nov 70	
TO	INITIALS	DATE	REMARKS
DIRECTOR			<p><i>I'd like to have a brief summary that I can forward to APPDI, Chairman COMIREX, [redacted] ICRS, EXSUBCOM, etc. for their info.</i></p> <p><i>[Signature]</i></p>
DEP/DIRECTOR			
EXEC/DIRECTOR	<i>2</i>	<i>11/12</i>	
SPECIAL ASST	<i>1</i>	<i>11/12</i>	
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RECORDS MGT			
PERSONNEL			
LOGISTICS			
TRAINING			
SECURITY			
FINANCE			
CH/IEG			
DEP CH/IEG			
EXO/IEG			
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DECLASS REVIEW by NIMA/DOD

NPIC/TSG-100/70

12 NOV 1970

MEMORANDUM FOR: Chief, Imagery Exploitation Group, NPIC  
Chief, Production Services Group, NPIC  
Chief, Planning, Programming & Budgeting Staff, NPIC  
Chief, Support Staff, NPIC

SUBJECT: Test and Evaluation of the [ ] Target Indexing  
Device (TID)

1. Our revised Test and Evaluation Plan for the TID is attached for planning and information purposes.

2. Please note paragraph 1.5 of the attached Plan concerning the establishment of an Implementation Team. This constitutes a significant change in the Proposed Test Plan distributed with the TSG/ESD Memorandum dated 11 September 1970. I have accepted the recommendation of my people to establish this Team and solicit your participation. Because of the concurrent responsibilities (Research, Development, Test & Evaluation) of TSG/RED and TSG/ESD, I have appointed [ ] Deputy Chief, RED and [ ] Deputy Chief, ESD to act as Team Co-Chairmen.

3. Your comments concerning the concept of an Implementation Team are requested. If acceptable, please forward the names of your representatives to [ ] Since the TID is now scheduled for delivery approximately 30 November 1970, your response by 20 November 1970 will be appreciated.

[ ]  
Chief, Technical Services Group, NPIC

Attachment:  
Test Plan

Distribution:  
Original & 2 - NPIC/TSG/ESD  
1 - NPIC/IEG/Ch  
1 - NPIC/PSG/Ch  
1 - NPIC/PPBS/Ch  
1 - NPIC/SS/Ch  
1 - NPIC/ExDir  
2 - NPIC/TSG/Ch  
2 - NPIC/TSG/RED  
2 - NPIC/TSG/APSD

SECRET

GROUP 1  
Excluded from automatic  
downgrading and  
declassification

TEST PLAN

5X1 [ ] TARGET INDEXING DEVICE

1. INTRODUCTION

5X1 1.1 The [ ] Target Indexing Device (TID) is an engineering prototype which is currently being produced by the Data Systems Division of [ ]. The prototype is the result of the Phase IV task of the Automatic Target Recognition Program.

5X1 1.2 The TID is intended to provide an automatic cloud screening technique for use in the target indexing operation normally performed (manually) during initial handling of newly acquired imagery prior to interpretation. The design goals for this application of the TID are to scan the forthcoming operational photography at a speed of 100 feet per minute in each of two operating modes to determine: (1) whether specific target locations are cloud free, partially covered or fully cloud covered (look thru mode), or (2) the amount of cloud cover for each frame.

5X1 1.3 The equipment as configured consists of six separate units. They are: the main chassis, two magnetic tape units, a tape controller, a DDP.516 computer and a teletype. The weight of the system is approximately 2750 lbs. and power requirements are 65A, 115  $\pm$ 5VAC, 60HZ, single phase. Because of its physical size, weight and immobility, the TID will be installed in [ ] upon its arrival at NPIC. This space is occupied by PSG/R&RD/DAS which is expected to become the ultimate user of the equipment.

1.4 This is a general test plan which briefly describes the various stages of the overall test and evaluation program. In addition, responsibility for each stage of the test and evaluation program is specified.

1.5 Because of the scope of the ATR program, the expected impact on exploitation operations, and the wide interest in the TID, an Implementation Team is planned. Representatives from each of the Center Groups, PPBS and SS are recommended; specifically, IEG/OSD, TSG/APSD, TSG/ESD, PPBS, PSG/R&RD, PSG/AID, TSG/RED seem appropriate. It is proposed that the Implementation Team function as a coordinating body to ensure T&E support as required and to insure that the Center's interests and requirements are met. Team conferences will be convened periodically at significant points during the T&E program. Upon completion of the operational evaluation the Team will be convened to consider results and to make recommendations regarding operational implementation of the TID.

## 2. DEMONSTRATION AND PRELIMINARY ACCEPTANCE TESTS

2.1 A demonstration and preliminary acceptance testing of the TID is scheduled to be conducted at the contractor's facilities during the week of 15 November 1970. All equipment operating modes will be demonstrated using artificially configured test imagery and a simulated ephemeris input.

2.2 Personnel from RED and TEB will be present at the demonstrations. However, preliminary acceptance and arrangement for shipment of the prototype is the responsibility of the RED contract monitor.

## 3. INSTALLATION, CHECKOUT AND DEMONSTRATION

3.1 The TID is scheduled to be installed in NPIC during the week of 29 November 1970. During that period [ ] personnel will be re-aligning and rechecking the system for proper operation. Messrs. [ ] of RED, [ ] of ESD, and principle operators from PSG/RRD will be present to gain experience in its operation. In addition, maintenance personnel from ESD will be present in order to learn proper alignment, checkout and troubleshooting procedures.

3.2 Demonstrations of the TID, for selected individuals from various government agencies are planned during the latter part of the week of 6 December 1970.

3.3 In the normal T&E cycle, acceptance testing is performed soon after the equipment arrives at NPIC. RED Development Objectives are used as test guidelines for conformance requirements. Since the system is the result of an experimental study, detailed development objectives are not available. Consequently during this phase of the test only accuracy and processing speed checks are planned.

## 4. ENGINEERING AND PERFORMANCE TESTING

4.1 The TID is scheduled to undergo 4 weeks of Engineering and Performance testing beginning the week of 13 December 1970.

4.2 The purpose of this testing phase is to investigate the performance capability of the system and to evaluate its suitability for the cloud screening function from an engineering viewpoint. It

will provide NPIC with information on system operating characteristics, reliability and failure rate. In addition, this phase will serve as a "shakedown" for the TID.

4.3 System performance will be tested using the simulated imagery and ephemeris input. This ephemeris information will be modified to scan additional target locations in the "look thru" mode. System data output repeatability will be tested in both operating modes to determine the expected decision confidence levels for the forthcoming imagery.

4.4 A detailed analysis will consider factors such as reliability, maintainability, system troubleshooting aids, safety and human factors. Additionally, delivered items such as spare parts, special tools, operator and maintenance manuals and engineering drawings will be evaluated.

## 5. OPERATIONAL SUITABILITY TESTS

5.1 Operational testing of the TID will begin soon after operational materials from the new system arrive at NPIC. The automatic decision output of the system will be compared to a manually derived data base.

5.2 The sources of the manual data base are: (1) IEG, for determination of ground coordinates of known targets on the test film, (2) TIGER Team, for gross readout of cloud cover percentages, (3) PSG/RRD/Geographic Services Branch, for detailed readout of cloud cover percentages and for determination of whether the specific targets found on the test film are cloud covered or cloud free.

5.3 The operational tests will be conducted by PSG/RRD/Data Analysis Branch according to a structured test procedure planned jointly by PSG/RRD/DAB, PSG/RRD/GSB and TSG/ESD/TEB, and developed by TSG/ESD/TEB.

5.4 Personnel from TSG/ESD/TEB will provide additional operator training as required.

## 6. TEST AND EVALUATION REPORT

6.1 Upon completion of the testing program described herein, an overall test and evaluation report will be produced. This report will contain details of all testing performed on the TID, and will contain

conclusions and recommendations. It is planned to distribute this report to several components within NPIC, to EXRAND Committee members and qualified parties within the U.S. Government upon request.



Test Engineer,  
TEB/ESD/TSG

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Chief,  
TEB/ESD/TSG

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